REMARKS

As a preliminary matter, Examiner has rejected Claim 15 as being anticipated by the Levine reference on page 3 of the current Office Action. This appears to be a typographical error, as Claim 15 is not discussed in the explanation of the anticipation rejection which appears on pages 3-6 of the Office Action. Rather, Examiner discusses Claim 16 (absent from the formal rejection on page 3), and Claim 15 is discussed on pages 6-7 as being obvious. Accordingly, it is Applicants' understanding that Claim 16, and **not** Claim 15, was intended to be rejected on page 3 as being anticipated by Levine. Therefore, the following remarks are made with that understanding.

As another preliminary matter, Examiner has objected to Claim 15 because of an informality. Claim 15 stands currently amended to address Examiner's concerns. Accordingly, Applicants respectfully assert that Claim 15 is now in proper form. Therefore, Applicants respectfully request Examiner withdraw the objection to Claim 15 because of an informality.

Examiner has rejected Claim 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In addition, Examiner has rejected Claims 13, 16, 18, 21, and 23-26 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Pub. No. 2003/0007124 to Levine ("Levine"). Examiner has also rejected Claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Levine. In addition, Examiner has rejected Claims 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over LEvine in view of U.S. Patent No. 6,585,723 to Sumiya ("Sumiya").

Claims 13 and 15 stand currently amended. Claims 1-12, 17, 19, 20, and 27-29 stand previously canceled. Claims 13-16, 18, and 21-26 are currently pending. The following remarks are considered by applicant to overcome each of the Examiner's outstanding rejections to current Claims 13-16, 18, and 21-26. An early Notice of Allowance is therefore requested.

I. SUPPORT FOR AMENDMENT TO CLAIM 13

Independent Claim 13 has been amended to state, in part:

"means for generating different specific illumination patterns and/or profiles on an eye of a patient;

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"wherein the means for generating different specific illumination patterns and/or profiles includes:

"a control unit configure to control which of the different specific illumination patterns and/or profiles are generated on the eye of the patient; and

"optical filters, diaphragms, and/or optoelectronic light modulators ~~with a control unit are used as the means for~~ which actually ~~generating~~ generate the different specific illumination patterns and/or profiles...." (emphasis added").

The above amendments are supported by Fig. 1 (showing that the patterns and/or profiles are generated on an eye of a patient) as well as paragraphs [0002], [0012] of the current Application, which states:

> [0002] The present invention is directed to an arrangement for the **generation** of a variable **illumination** for diagnosis and therapy, particularly for the **human eye**. The **illuminated object** can be an artificial object as well as biological tissue, for example, **an eye**. As regards an eye, **it is possible to irradiate the lens of the eye as well as other portions of the eye such as the cornea or retina.**
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> [0012] The present invention is directed to an illuminating and irradiating unit for generating **different** marks, patterns and profiles and can accordingly be used for diagnosis and therapy in ophthalmology. The illumination unit is suitable for different ophthalmic instruments.
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> [0016] The illumination unit for ophthalmic instruments comprises an illumination source 1, **means for generating**, monitoring **and controlling** illumination patterns and/or profiles, means for coupling the illumination light into the parallel beam path of the observation system of the ophthalmic instrument, and a central controlling and evaluating unit.
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> [0017] Figure 1 shows an illuminating and irradiating unit for a slit lamp in which the illumination source 1 is a narrow-band light in the short-wavelength range around 365 nm. The light bundle generated by the illumination source 1, e.g., an

> arc lamp, is directed by the condenser group 2 to the **means for generating illumination patterns and/or profiles. These means can be** fixed or exchangeable optical filters and/or diaphragms or can also be optoelectronic light modulators 3. For example, a DMD (digital micromirror device) microdisplay or a LCOS (liquid crystal on silicon) reflecting microdisplay can be used as an optoelectronic light modulator 3. Transmissive LCD (liquid crystal display), self-luminous LED (light emitting diode) or OLED (organic light emitting diode) optoelectronic light modulators 3 can also be used. The **control** of the optoelectronic light modulators 3 which can work based on transmission or reflection is carried out by means of a control unit (not shown). **Optional patterns, profiles and distributions can be used by these arrangements to generate a wide variety of effects.** The spectral and spatial range of the illumination beam can be influenced by optical filters 4 and/or diaphragms 5. The spectral bandwidth of the illumination radiation is limited to 365 nm +/- 5 nm, for example, by suitable filters 4.

(emphasis added).

As such, the Application clearly discloses that **different** illumination patterns and/or profiles can be generated **on and eye of a patient**, that these different patterns/profiles are **controlled** by a control means which is also a generating means, and that the **actual means for generating** the patterns/profiles include optical filters, diaphragms, and/or optoelectronic light modulators. Further, inherent in a means for controlling different illumination patterns and profiles is that such a controlling means **must, by necessity,** control which of the different specific illumination patterns and/or profiles are generated on the eye of the patient.

Accordingly, all of the amendments to Claim 13 are either supported by the explicit disclosure of the current application, or by the inherent properties of the specific disclosure of the current Application as commonly known to those of ordinary skill in the art.

II. SUMMARY OF RELEVANT LAW

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The determination of obviousness rests on whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. In

determining obviousness, four factors should be weighed: (1) the scope and content of the prior art, (2) the differences between the art and the claims at issue, (3) the level of ordinary skill in the art, and (4) whatever objective evidence may be present. Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor. The Examiner carries the burden under 35 U.S.C. § 103 to establish a prima facie case of obviousness and must show that the references relied on teach or suggest all of the limitations of the claims.

III. REJECTION OF CLAIM 13 UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

On page 2 of the current Office Action, the Examiner seems to reject Claim 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed and believed overcome in view of the following discussion.

A. Prior Explanation of Support for Amendments to Claim 13

As explained in the prior Amendment/Response of July 12, 2010, the only amendments made to Claim 13 at that time were (1) that an objective lens arranged in the ophthalmic instrument downstream from the means for coupling with respect to the illumination beam generated by the illumination source, and (2) that the parallel beam path (which is a portion of an illumination beam path that has boundaries which are parallel to each other) is located upstream of the objective lens and that the convergent beam path (which is a portion of the illumination beam path that has boundaries which converge towards each other so as to create a focal point at an object) is located downstream of the objective lens.

An optical microscope with an objective, as commonly known in the art, inherently has a parallel beam path (which is a portion of an illumination beam path that has boundaries which are parallel to each other) located upstream of the objective lens, and has a convergent beam path (which is a portion of the illumination beam path that has boundaries which converge towards each other so as to create a focal point at an object) is located downstream of the objective lens and converges at a focal point on an object. As such, no explicit description of this attribute of an objective need be included in the current

Application, as it is an inherent property of an objective commonly know by any of ordinary skill in the art. Thus, there is support portion (2) of the amendment to Claim 13 (described above), since the device described current Application includes an objective. See Application, objective 9 (discussed in specification and shown in drawings).

In addition, as seen in Fig. 1 of the Application as filed, the objective 9 is located downstream of the illumination source 1, with the objective being located between the illumination source and the patients eye 8 (i.e., the object). Thus, the device shown in Fig. 1 inherently has a convergent beam path portion located downstream of the objective 9 (i.e., between the objective 9 and the patients eye 8), and a parallel beam path portion located upstream of the objective 9. As such, the specification and drawings of the current Application provide ample support for portion (1) of the amendment to Claim 13 (described above).

Accordingly, all of the amendments to Claim 13 are either supported by the explicit disclosure of the current application, or by the inherent properties of the specific disclosure of the current Application as commonly known to those of ordinary skill in the art.

B. Examiner' s Current Rejection

Examiner asserts that the disclosure in the Specification of an observation microscope of a slit lamp as being an example of an observation system (see paragraph [0027]) implies that other observation systems could be used, and does not specify the type of microscope used. As such, Examiner asserts that Applicant's invention is not clearly not intended to be contingent on the optics described in Claim 13. This, however, seems to be misinterpreting the Specification as well as the general state of the art.

First, it is commonly understood in the art that the parallel beam path of an optical observation system is that part of the beam path which has boundaries which are parallel to each other. This is inherent in optical observation systems and is a term commonly understood in the art. As such, this prior amendment to Claim 13 is fully supported by the inherent properties of the specific disclosure of the current Application as commonly known to those of ordinary skill in the art. Thus, this claim language complies with the written description requirement.

Second, Fig. 1 clearly shows that the objective lens 9 is arranged in the ophthalmic instrument downstream from the means for coupling with respect to the illumination beam generated by the illumination source 1. As such, this prior amendment to Claim 13 is fully supported by the explicit disclosure of the current application. Thus, this claim language also complies with the written description requirement.

Third, Fig. 1 of the Application also clearly shows that the objective 9 focuses light from the illumination source 1 onto the eye 8. Such a focusing of light is known in the art to inherently have a "convergent beam path" as described in Claim 13, which is a portion of the illumination beam path that has boundaries which converge towards each other so as to create a focal point at an eye of a patient. As such, this prior amendment to Claim 13 is fully supported by both the explicit disclosure of the current application, and the inherent properties of the specific disclosure of the current Application as commonly known to those of ordinary skill in the art. Thus, this claim language complies with the written description requirement.

Finally, since the bean path from the objective lens 9 to the eye 8 must be a "convergent beam path", the "parallel beam path" must inherently and necessarily be located upstream of the objective lens 9. As such, this prior amendment to Claim 13 is fully supported by both the explicit disclosure of the current application, and the inherent properties of the specific disclosure of the current Application as commonly known to those of ordinary skill in the art. Thus, this claim language complies with the written description requirement.

In other words, all of the prior amendments to Claim 13 are fully supported by the optical elements described in the specification and the drawings of the current Application. Examiner admits that there is support for optical elements in the drawings/specification, and asserts that these optical elements should be used to describe the positioning of the beams. However, as described above, this is exactly what Applicants did when making the prior amendments to Claim 13. As such, Examiner has failed to establish that Claim 13 does not comply with the written description requirement.

Further, Examiner has **not specifically** indicated which portions of the prior amendments to Claim 13 are asserted as failing to comply with the written description requirement. Should Examiner still find Applicants' arguments above unpersuasive,

Applicants respectfully maintain that Examiner **must** point out **exactly** what claim language is being asserted as failing to comply with the written description requirement.

Accordingly, Applicants respectfully assert that Claim 13 is adequately described. Therefore, Applicants respectfully assert the Examiner withdraw the rejection of Claim 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

IV. REJECTION OF CLAIMS 13, 16, 18, 21, AND 23-26 UNDER 35 U.S.C. § 102(E) BASED ON SUMIYA

On page 3 of the current Office Action, the Examiner rejects Claims 13, 16, 18, 21, and 23-26 as being anticipated by Sumiya. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Amended, independent Claim 13 states, in part:

> "means for generating **different** specific illumination patterns and/or profiles on an eye of a patient;
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>
> "wherein the means for generating **different** specific illumination patterns and/or profiles includes:
>
> "a **control unit** configure to **control which of the different specific illumination patterns and/or profiles are generated on the eye of the patient**; and
>
> "optical filters, diaphragms, and/or optoelectronic light modulators which actually generate the different specific illumination patterns and/or profiles...." (emphasis added").

As such, it is now clear (1) that the means for generating specific illumination patterns and/or profiles actually generates **multiple different** specific illumination patterns and/or profiles, and (2) that **which** of the different specific illumination patterns and/or profiles are generated on the eye of the patient is **controlled** by a **control unit** which is **part of the means for generating** the patterns and/or profiles.

Neither the diaphragm of Levine (which only generates a uniform illumination of the eye) nor the wavefront sensor 213 (which, when comprising a Tscherning wavefront analyzer, may illuminate the eye with a single dot pattern formed by a laser source

and a dot pattern mask) are configured to generate **multiple different** specific illumination patterns and/or profiles. Further, Levine does **not** disclose any **control unit** which is **part of the means for generating** the patterns/profiles **and controls which** of the different specific illumination patterns and/or profiles are generated on the eye of the patient.

In addition, Levine's solution is directed to a modular fundus camera with an adaptive optical module. The adaptive optical module includes a wavefront sensor, a control and a phase-compensating optical element. The light from a first light source is projected on the human eye for generating retinal reflections. The phase aberrations detected by the wavefront sensor and transmitted to the control are compensated by controlling the phase-compensating optical element so as to allow error-free image detection at the eye.

However, Examiners assertion that the solution described by Levine has means for generating patterns or profiles is incorrect. More specifically, Examiner's interpretation of the diaphragm (243) in combination with the wavefront analyzer (213) as means for generating patterns or profiles completely misinterprets the teachings and disclosure of Levine.

For wavefront analysis, the diaphragm (243) has the sole and exclusive purpose of generating the most uniform possible illumination of the eye. By no means is any pattern or profile to be generated by this diaphragm. Only a uniform illumination of the eye will lead (Fig. 2b) to a planar wave profile with an ideal eye and to a defined wave profile with a non-ideal eye. This defined wave profile can be analyzed by a wavefront sensor. To this end, the defined wave profile (according to Figures 3B and 3C) is mapped on the wavefront sensor (31) by a lens array (307). However, the generation of a pattern by means of point patterns cited by the Examiner is not carried out in the eye, but only on the wavefront sensor (311).

In contrast, in the solution of Claim 13, the **multiple different** marks, patterns, and profiles that are controllably/selectively generated are imaged on the eye and can be used for diagnosis and therapy in ophthalmology.

Although Levine's solution has means for coupling in (e.g., a beamsplitter (239) or objective (241)) and also provides for the use of color filters for the illumination of the retina, it does **not** possess means for generating **multiple different** patterns or profiles within the meaning of Claim 13.

For the reasons set forth above, Applicant respectfully asserts that Examiner has failed to establish a *prima facie* case of anticipation of independent Claim 13, and corresponding Claims 16, 18, 21, and 23-26 because they are each ultimately dependent from Claim 13. Therefore, Applicant respectfully requests that Examiner remove the rejection of Claims 13, 16, 18, 21, and 23-26 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,585,723 to Sumiya.

V. REJECTION OF CLAIM 22 UNDER 35 U.S.C. § 103(A) BASED ON LEVINE

On page 5 of the current Office Action, the Examiner rejects Claim 22 as being unpatentable over Levine. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Claim 22 is ultimately dependent from independent Claim 13. As Claim 13 is allowable, so must be Claim 22. Accordingly, Applicants respectfully assert that Examiner has failed to establish a *prima facie* case of obviousness of Claim 22. Therefore, Applicant respectfully requests that Examiner remove the rejection of Claim 22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2003/0007124 to Levine.

VI. REJECTION OF CLAIMS 14 AND 15 UNDER 35 U.S.C. § 103(A) BASED ON LEVINE IN VIEW OF SUMIYA

On page 6 of the current Office Action, the Examiner rejects Claims 14 and 15 as being unpatentable over Levine in view of Sumiya. This rejection is respectfully traversed and believed overcome in view of the following discussion.

Claims 14 and 15 are each ultimately dependent from independent Claim 13. As Claim 13 is allowable, so must be Claims 14 and 15. Accordingly, Applicants respectfully assert that Examiner has failed to establish a *prima facie* case of obviousness of Claims 14 and 15. Therefore, Applicant respectfully requests that Examiner remove the rejection of Claims 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2003/0007124 to Levine in view of U.S. Patent No. 6,585,723 to Sumiya.

Based upon the above remarks, Applicant respectfully requests reconsideration of this application and its early allowance. Should the Examiner feel that a telephone conference with Applicants' attorney would expedite the prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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